Chapter 4:

Identifying Causes of Wetland Loss and Degradation

Early in the process of developing a wetland focus area, it is important for the local focus area team to try to identify all the causes of loss and degradation currently impacting the wetlands of interest. Some of these causes will be easy to identify–they may be the very reason the focus area got started in the first place. Urban sprawl, housing development, run-off from agricultural operations, dredging and filling operations–all of these are relatively "high profile" reasons. However, other factors may cause as much or more damage to wetlands, but may be much less visible to the casual observer. The focus area team should try to gather as much information as possible about the wetlands of interest and the possible causes of loss and degradation that affect them before deciding where to allocate its time and energy.

It is also important for the team to identify the areas that were formerly wetlands, but that have been converted to other uses. These areas may be the best candidates for future wetland restorations, if appropriate.

Where Are the Wetlands?

Before you can identify causes of degradation, you obviously have to know where the wetlands are. A good first step to identifying the wetlands in your area is to meet with the local Soil and Water Conservation District (SWCD), the USDA Natural Resources Conservation Service (NRCS), and Farm Service Agency (FSA). These agencies can provide aerial photos, topographic maps, and soil maps of the local landscape. They can also provide a lot of valuable information about the current situation in the area (farming, development, drainage, etc.).

Have the technical experts at the above agencies help you read and interpret the soils maps for your area. The presence of certain soil types indicates that wetlands are (or once were) present in that area. This is an excellent way to get a "first cut" at where the wetlands are, and which previously converted areas might be good candidates for restorations.

Maps and photos are extremely valuable, especially at the outset, but there is no substitute for spending some time out on the ground, looking at wetlands firsthand. You can learn a lot about wetlands just from looking at the area from the county roads. Drive around and verify the information on your maps with your own observations. Observe the area when it is dry, as well as right after a heavy rainfall. The location of standing and flowing water offers great clues about the hydrology of the area. Make notes about what you see. Farm fields that frequently flood might be good candidates for wetland restorations. Many farmers are eager to sell unproductive or "risky" land.

The Limberlost Experience – Using An Airplane To Locate Wetlands

Coordinator Ken Brunswick took to the air to help identify wetlands in the Limberlost Pilot Focus Area.

In the early days of my information gathering process, I was restricted to the county roads in many areas, but I knew I needed more information about the central areas within each section.

To get around the laborious process of contacting every landowner for permission to enter their land, I scheduled a one-hour flight at a local airport right after a significant rainfall. From the airplane, the floodplains, marshes, and potholes were very apparent.

I used a 35-mm camera with an 80-120mm telephoto lens to capture the images. These photos supplemented the work I did on the ground, and a much more comprehensive and accurate map was thus available for use by our focus area team.

After you have identified specific wetlands of interest, then the detective work begins. Examine the wetland itself as well as the watershed that feeds it for sources of potential degradation. Much can be learned by spending time walking around within the wetland itself and within its immediate watershed. However, if the area is not in public ownership, do not enter without permission.

Negative Impacts

Following is a list of some of the more common actions and conditions that can have major negative impacts on wetlands.

1. Development and Construction

On construction sites, the soil is often disturbed in large areas. Without protection, soil from these construction sites may erode into surrounding drainage ditches and low areas. There are rules and regulations for proper construction practices to reduce these impacts on sites larger than five acres in size. Members of the focus area team should report suspected violations to the local Soil and Water Conservation District (call 317-692-7374 for the number of your local SWCD) and to the Indiana Department of Environmental Management, Office of Water Management (317-232-8675).

2. Urban Runoff from Parking Lots, Rooftops, Etc.

If the wetlands you are interested in are in an urban or suburban area, they may receive runoff from parking lots, rooftops, and other impervious surfaces. Parking lots can be especially harmful because the runoff carries with it silt, oil, rubber, gasoline, and other potentially harmful substances that are then deposited in the wetlands. Encourage new and existing developments to address these considerations with the use of grass/tree islands, retention basins, and other natural design features.

3. Agricultural Run-off

In the spring, agricultural crops are planted, fertilized, and sprayed with pesticides and herbicides. When it rains, soil particles that are enriched with chemicals and fertilizers run off of the target areas and are deposited in surrounding wetland depressions.

4. Lawn Maintenance

Many homeowners and most parks and golf courses use large amounts of chemicals and fertilizers on their properties to keep the grass looking good. Many times, they use more than they need–more than the grass can absorb–and the excess runs off the land and gets into wetland areas. These situations can cause as much degradation to wetlands as nearby farmlands many times larger in area. Reducing the mowing area by planting native habitat will reduce the need for excessive chemicals. Encourage moderate use of lawn treatments and reduction in size of lawn areas, where appropriate. Replacing grass with native plants offers the advantages of lower maintenance costs, as well as habitat for wildlife.

5. Drainage

Ditches and field tile can drain off water that you want to keep in your wetlands. This can be a problem if you're trying to restore an area that has multiple drains, or the drainage of your target area impacts the drainage on surrounding properties. Surveyors and experts from the state and federal agencies mentioned above can help you determine the implications that drainage on your target area has on the surrounding landscape.

6. Deforestation

Harvesting timber in wetland situations can be very tricky and can be very detrimental to the wetland if done improperly. The Indiana DNR Division of Forestry can advise you and other local landowners about the best management practices and proper forestry methods for these situations.

7. Livestock Damage

In most cases, livestock and wetlands don't mix very well. Livestock are not suited for wetland habitats. They tromp the land, destroying the vegetation and creating serious erosion problems. They also deposit major nutrient loads into the wetland. Encourage local landowners to fence livestock out of streams and wetlands.

8. Lowering of the Water Table

If too many wells are installed in certain areas, it can lower the water table, affecting the availability of water. Check with your local water supplier to see if this is an issue in your area. Restoring wetlands over your aquifer can help mitigate this problem. Wetlands allow water to slowly percolate down through the ground, ensuring a plentiful supply of clean well water.

9. Illegal Filling, Dumping, Etc.

The U.S. Army Corps of Engineers and the Indiana Department of Environmental Management administer federal and state regulations that govern the filling and dredging of wetlands. If you see illegal filling, dumping, or dredging activities in your area, contact the IDEM Office of Water Quality Standards at 317-233-8488. They can provide information and put you in contact with the appropriate authorities.

10. Overuse

Sometimes the area you want to protect can become so popular with the public, visitation can affect your conservation goals. Be prepared to take action to lessen the impacts if this should become a problem. Personnel from state and national parks and the DNR Division of Outdoor Recreation can help provide solutions to these problems.

The Limberlost Experience – Looking For Problems

Pilot Focus Area Coordinator Ken Brunswick identified the following sources of wetland degradation in the Limberlost Swamp area, and how the focus area team is addressing them.

Runoff from Local Farms

Our team is uncertain as to how much of a problem this is, so we began water quality studies in 1999 to determine the actual chemical/nutrient content of the floodwaters in the Limberlost area.

Drainage

At one of the restorations we completed in the Limberlost, we had to break seven different tiles that all drained the same 3/4-acre basin. The tiles were unmapped and difficult to find. We found that even a small trickle through a nearly plugged, 100-year-old tile was enough to degrade the wetland. Unfortunately, we cannot restore wetlands onall of our property because certain restorations would impact the drainage on neighboring cropland.

Lowering of the Water Table

The 428-acre Loblolly Marsh Wetland Preserve is located above the Teays River Aquifer. Most of the residents, businesses, and industries in the Limberlost area use this aquifer for their water supply. Waters from restored wetlands in the Limberlost Pilot Focus Area percolate down into this aquifer, helping to ensure a constant water supply for the local communities.

Overuse – Loving it to Death

At the Limberlost, 268 acres of the Loblolly Marsh Wetland Preserve is open to the public. We get a lot of public visitation, including school groups and civic organizations. We are creating trails in the upland areas to control access, and boardwalks are provided wherever the soil is too wet for foot traffic. We also prohibit access to 160 acres of the preserve, to provide wildlife refuge areas where natural systems can be established.

The focus area team should create a list of the potential negative impacts on the wetlands in the focus area, as well as a list of areas that would be good candidates for wetland restoration, if restoration is a goal of the group. These lists provide guidance to the team as to where its effort can be spent most efficiently and effectively.